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Common open standards for the exchange and sharing of data and metadata

Note by the Secretary-General

In accordance with a request of the Statistical Commission at its thirty-seventh session,** the Secretary-General has the honour to transmit the report on an initiative to foster common open standards for the exchange and sharing of data and metadata. The report is presented to the Commission for information.

* E/CN.3/2007/1.

** *Official Records of the Economic and Social Council, 2006, Supplement No. 4* (E/2006/24), chap. I, sect. B.

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Report on common open standards for the exchange and sharing of socio-economic data and metadata: the SDMX initiative*

I. Introduction

1. In 2001, the Bank for International Settlements, the European Central Bank, the Statistical Office of the European Communities (Eurostat), the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD) and the United Nations joined together to develop more efficient processes for the exchange and sharing of data and metadata within the current scope of their collective activities. The World Bank joined the initial group of sponsor organizations in 2003.

2. The goal of the Statistical Data and Metadata Exchange (SDMX) initiative is to foster standards and guidelines that allow national and international organizations to gain efficiencies and avoid duplication of work in the area of data and metadata exchange through the use of modern technology. The above sponsor organizations have been making progress over the past few years, especially through the increasing involvement of international and national statistical agencies. SDMX builds on existing and emerging technical exchange protocols and on the content-oriented efforts of statisticians that have worked on these long-standing issues in various domains and forums. More details can be found at the SDMX website (see www.sdmx.org).

3. The United Nations Statistical Commission received an initial report on the initiative during its thirty-third session, in March 2002.[1] A follow-up report was submitted to the Commission at its thirty-fourth session, in March 2003,[2] focusing on the launch of projects jointly undertaken by the sponsoring institutions. Subsequent reports in March 2004[3] and March 2005[4] reported on further progress; and a special outreach event about SDMX was attended by about 50 delegates to the March 2006 Commission session. The present report reviews the latest developments in SDMX and outlines future plans. In particular, section II summarizes achievements in standards and guidelines and section III focuses on progress in implementations. Section IV takes up the topic of outreach, particularly with respect to involving the global community of national and international statistical agencies.

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* The report has been jointly prepared by the Bank for International Settlements, the European Central Bank, the Statistical Office of the European Communities, the International Monetary Fund, the Organization for Economic Cooperation and Development, the United Nations Statistics Division and the World Bank.

[1] See *Official Records of the Economic and Social Council, 2002, Supplement No. 4* (E/2002/24), chap. VI, sect. C; see also http://unstats.un.org/unsd/statcom/sc2002.htm.

[2] See http://unstats.un.org/unsd/statcom/sc2003.htm.

[3] See http://unstats.un.org/unsd/statcom/sc2004.htm.

[4] See http://unstats.un.org/unsd/statcom/sc2005.htm.

II. Progress in standards and guidelines

4. All the major building blocks of SDMX are now in place, providing a framework for technical standards and content-oriented guidelines to support more effective exchanges of quality data via modern technology. Benefits for international and national organizations using SDMX include reporting systems, internal processing systems (for compiling data and metadata) and external dissemination (e.g. via the Internet). In particular, the dissemination of national data and metadata using Web technology and SDMX standards is seen as a way to reduce the international reporting burden, through the use of common formats and nomenclatures.

5. The information model, formats and architecture that constitute SDMX technical standards (version 2.0) were approved by the SDMX Sponsors Committee in November 2005, after being posted on the SDMX website for public comment and being adjusted to reflect input received from national and international statistical agencies around the world. Version 2.0 is being submitted for review by the International Organization for Standardization (ISO), which approved version 1.0 as Technical Specification 17369 in April 2005.

6. A draft framework for SDMX content-oriented guidelines was made available for public review during first and second quarters of 2006 via the SDMX website, and input received is being taken into account in revising and extending these guidelines. Among others, comments were received via several meetings involving national statistical agencies from around the world with broad positive agreement on the overall direction and the need to make further advances in the detailed specifications. The draft content-oriented guidelines cover preliminary lists of cross-domain concepts and statistical subject-matter domains, as well as a metadata common vocabulary. A follow-up consultative period is being envisaged.

7. At the technical level, SDMX provides standards and mainstream mechanisms that can be applied to preparing and accessing data in common formats, allowing them to also be available via modern transmission techniques and by using Web technology. In the latter, data stored on public and/or secure websites using SDMX standards can be retrieved by one or more international organizations for compilation and analytical purposes. Tools to facilitate implementations and a user guide, covering a range of topics, are also being made available through the SDMX website.

8. Thanks to this work, the main technical building blocks necessary for the concrete use of SDMX standards are now available. Therefore, any organization interested in using SDMX standards and tools to exchange data and metadata with its correspondents or for its internal use can do it.

III. Progress in implementations

9. Projects within and outside the SDMX sponsoring organizations are demonstrating practical ways of using SDMX and confirming that the technical standards work efficiently in practice. In particular, the following projects have been implemented or are under way (see www.sdmx.org):

- SDMX Open Data Interchange (Eurostat): to collect and disseminate in real-time short-term economic indicators in the European Statistical System, also ensuring a proper European Union-wide exchange of reference metadata conformant with SDMX standards and guidelines;

- Joint Comtrade Statistics System (United Nations Statistics Division and OECD): to exchange international trade data between OECD and the United Nations Statistics Division and keep up to date in real time two sister databases in New York and Paris;[5]

- National Accounts World Wide Exchange (OECD): to update in real time the OECD database on national accounts using data released by national statistical offices;

- Joint dissemination of euro area statistics and warehouse (European Central Bank): to disseminate statistics (euro area aggregates and related national breakdowns) simultaneously and in the respective languages on the websites of the European Central Bank and the national central banks of the Eurosystem;[6] and to provide additional interactive access capabilities via the European Central Bank Statistical Data Warehouse (SDW).[7]

- Joint External Debt Hub (Bank for International Settlements, IMF, OECD, World Bank): to disseminate external debt statistics from creditor/market (international compilers) and debtor (national compilers) sources;[8]

- Metadata repositories (IMF): to facilitate the open exchange of reference metadata that are collected and stored in repositories, especially in the context of macroeconomic datasets, so that this information can be more efficiently received and updated from countries.

10. Other projects are also leading the way at other international organizations, e.g. the Food and Agriculture Organization of the United Nations, the United Nations Development Group/DevInfo and the United Nations Educational, Scientific and Cultural Organization. Some of this work involves tools that rely on SDMX standards and are expected to be helpful for outreach to developing countries.

11. Meetings and projects involving national statistical agencies have indicated that SDMX implementations are being considered and taken forward around the world. In Europe, Eurostat and the European Central Bank are leading the way in SDMX activities in close coordination and cooperation with their national constituencies. The Bank for International Settlements, IMF, OECD, the United Nations and the World Bank are also taking forward parallel initiatives with their global constituencies. These and related efforts by other statistical agencies and countries have focused on the domains of economic, financial and trade statistics, as well as social statistics and those for food and agriculture.

[5] See http://comtrade.un.org/kb/article.aspx?id=10087.
[6] See http://www.ecb.int/stats/services/escb/html/index.en.html.
[7] See http://www.ecb.int/stats/services/sdw/html/index.en.html.
[8] See http://www.jedh.org.

IV. The way forward

12. A central priority in going forward with SDMX is broader outreach to other international and national statistical institutions. SDMX standards and guidelines need to ensure that all parties that are (and may be) interested in them have opportunities to contribute to their evolution. Engagement in future efforts can be achieved through many ways, e.g. comments on documents made publicly available via the SDMX website and consultations (bilateral and multilateral) in a range of ongoing and ad hoc forums.

13. At the international level, the sponsoring institutions have concentrated their attention on discussions and feedback involving the Committee for the Coordination of Statistical Activities, which brings together about 25 international institutions within and outside the United Nations family of statistical agencies. In 2006, the Committee endorsed the SDMX framework in principle for data and metadata exchanges. It also encouraged more information to be provided on the subject of implementation strategy, including the envisaged coordination of subject-matter domain guidelines involving SDMX that would include the participation of national and international institutions.

14. Exchanges of views about SDMX are regularly taking place at various meetings and conferences of experts and heads of statistics, focused on emerging national and international developments in data and metadata exchange. Some of these sessions are also being directly facilitated by the SDMX sponsoring institutions as part of their usual collaboration and awareness-building with their constituencies.

15. A further step forward in outreach will take place through an international conference entitled "Towards implementation of SDMX", to be hosted by the World Bank in Washington, D.C., from 9 to 11 January 2007. Two days of presentations and a panel discussion about SDMX implementations (completed and planned) will be followed by an additional day of capacity-building sessions concerned with technical standards and content-oriented guidelines.

V. Conclusions

16. **SDMX technical standards and content-oriented guidelines have started to become a focal point for improving the exchange and sharing of statistical data and metadata using modern technology. The SDMX sponsoring institutions look forward to continued involvement of national and international statistical institutions in shaping future SDMX developments and implementations. It is hoped that, over the months ahead, further outreach efforts can help to ensure that SDMX standards and guidelines are further implemented at the international and national levels.**

17. **The United Nations Statistical Commission may wish to take note of the report.**